

EXHIBIT 1-ATTACHMENT M

**SIERRA CLUB COMMENTS ON
CONSENT DECREES, ATT. M:**

DECLARATION OF MICHAEL KAVANAUGH

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I, Michael Kavanaugh, affirm and state as follows:

1. I am an economist doing business at 160 Wood Street, Batavia, Ohio 45103. I received my Ph.D. in economics from the University of Cincinnati in 1975 and my BA in economics from Xavier University in 1970. I taught economics at the University of Cincinnati and at Northern Kentucky University. I have worked as a natural resource and environmental economist for a variety of clients for 30 years. My clients include the U.S. Department of Justice, the U.S. Environmental Protection Agency, the Ohio Attorney General and various citizen groups. I have qualified as an expert in federal courts on the economic benefit gained by dischargers who violated their permits under the Clean Water Act, and on the burden placed on defendants by penalties and remedies. I have estimated the economic benefit enjoyed by municipalities because of non-compliance with environmental regulations numerous times. I have testified in court and in deposition about the economic benefit enjoyed by municipalities at least ten times. I have attached my resume to this declaration.

2. I have had limited involvement with this case on behalf of the United States. I attended a meeting between the United States and MSD in June 2001. Subsequent to that meeting, at the request of the USEPA, I constructed a set of mathematical formula that allowed the user--by setting values for key variables--to determine the share residential rates would have of median household income.

3. In early 2002 the Sierra Club asked me to assist them in their citizens' suit. They asked me to describe my understanding of: (1) the process of determining the burden on residential ratepayers placed by required remedies and penalties; and, (2) the process of determining economic benefit that a municipality has received by non-compliance with the law. The Sierra Club compensates me for this work on a time and materials basis at the rate of \$125/hr.

4. The burden placed by remedies and penalties—often referred to as the ability to pay or the economic impact—is a statement about the cost of remedy and penalties relative to a measure of ratepayer income. In my opinion, cost estimates alone do not contain enough information to draw a conclusion about the extent of the efforts the municipality is making to remedy a problem. Cost statements alone are inadequate to make judgments about the burden that a community will bear to comply with its legal requirements and to protect human health and the environment.

5. The usual measure of burden is made by (1) expressing the annual charge for wastewater services paid by ratepayer households as a share of median household income; and (2) comparing that result to the thresholds USEPA has established for indicating burden. Typically annual charges include current costs (operating plus debt service), non-overflow replacement and improvement costs, and overflow costs. Since overflow controls are generally built and paid for over ten to twenty years, estimates of costs in future years are made. Similarly, current and future estimates of median household income are made. These results may then be compared with the thresholds that indicate burden.

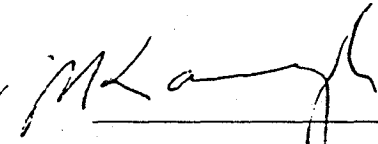
6. Economic benefit is the cash that, if removed from the defendant today, will leave it in the same financial position had it complied with the law without delay. Simply removing the economic benefit of non-compliance is not a deterrent to non-compliance. To deter non-compliance, a penalty must exceed the economic benefit in order to make non-compliance more costly than compliance. Accordingly, it has been a long-standing, national EPA policy that at a minimum a penalty should remove all of the violator's economic benefit. I have never been involved in an enforcement action that was settled without the payment of civil penalties. In my opinion, if a case were to settle for a zero penalty, the regulated community would receive a signal that non-compliance is less expensive than compliance. Those members of the community currently out of compliance would remain there until ordered, and those members of the community that were already in compliance would receive a signal to reduce their pollution control efforts.

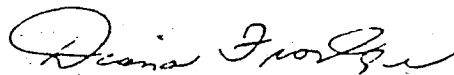
7. For settlement purposes, the USEPA has developed a tool to estimate economic benefit of non-compliance (the BEN Model). The model uses estimates of the avoided and delayed spending needed for legally-required pollution control, the dates over which spending was avoided or delayed, and economic and financial parameters to make a present value estimate. The BEN model has been applied to numerous municipalities and non-profits.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct.

4/16/2002

Date


MICHAEL KAVANAUGH



DIANA FRODGE, Notary Public
In and for the State of Ohio
My Commission Expires 9-20-05

MICHAEL KAVANAUGH
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Batavia, OH 45103-2923
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PRESENT POSITION: Private practice, since 1985

PREVIOUS POSITIONS

Senior Economist/Project Manager, ICF Incorporated, 1983-85,
Washington DC
Research Director, Public Interest Economics Foundation, 1976-83
Washington DC & San Francisco CA
Assistant Professor, Northern Kentucky University, 1975-76

EDUCATION

Ph.D., Economics, University of Cincinnati, 1975
BA, Economics, Xavier University, 1970

EXPERIENCE

Dr. Kavanaugh is:

- an independent research economist with over twenty-five years of experience;
- a national expert in environmental enforcement and policies for municipal and industrial pollution sources;
- experienced in natural resource damage assessment and regional economic impact assessment; and,
- an author of groundwater management and climate change papers.

Short descriptions of selected projects follow.

ECONOMICS & FINANCE

Applied economics to many of the environmental changes of the last twenty-five years including:

- estimating the benefits of cleaner beaches and rivers;
- developing methods to determine the effects of water quality policies on agricultural output, employment, and income;
- developing methods to estimate the benefits of preserving groundwater quality;
- estimating expected and realized benefits and costs of irrigation projects; and
- critiquing efforts to regulate effluents from several industries.

Examples include:

Exxon Valdez - Estimated the employment and income effects from spending the civil settlement. The work involved characterizing the options in the restoration plan in terms of input/output models.

Ohio River - valued public resource damages from spills from tugs and barges. The work combined results from the Natural Resources Damage Assessment models for Great Lake environments, studies of the costs of reducing risks to drinking water, and restoration costs.

Kailua Beach State Park - valued a three-mile public beach based on recreational use and estimated the damage to the beach from wastewater treatment plant effluent. The work involved reviewing, updating and synthesizing a variety of studies that valued recreation.

Florida Beaches - valued beach closures from pollution at several beaches. The work involved extensive use of the Natural Resource Damage Assessment models for coastal and marine environments.

Provided expert economic and litigation support services to the United States (and others) in Clean Water Act, Clean Air Act, Superfund, Resource Conservation and Recovery Act Enforcement Cases.

Designed and used financial after-tax, cash-flow models to:

- estimate the benefit gained by entities that violate their discharge permits;
- measure the effect of penalties on their financial position; and,
- estimate the residential burden for controlling overflows from combined and separated sewers.

Advised environmental groups on the use of contingent valuation to value natural resource damages and commented on the Federal Register Notice on the use of contingent valuation to determine damages.

Testified about the influence of groundwater quality on residential property values.

Design team member to size and fund the CERCLA Superfund and the WVA acid mine drainage reclamation fund.

Testified about the change in rates needed to pay for adopting cooling water intake controls at a nuclear power plant.

Testified to the benefits North Miami received from a landfill and on the economics of operating a landfill (Orange County, NY).

Conducted several analyses of the U.S. petroleum industry: to estimate current and future production in wetlands and in the arctic; and, to estimate the cost effectiveness of technologies to control produced water discharges.

Estimated current and future greenhouse gas emissions by fuel, sector, and region. The work involved estimating long-term energy use using an economic model based on prices and income and forecasting combustion technology. Atmospheric modelers use the work.

Advised and submitted affidavits supporting Alaska's position on oil and gas leasing in the North Aleutian Basin.

PUBLICATIONS

"Fuel economies available from ultrahigh bypass jet engines" in *Cost estimates of measures available to reduce U.S. greenhouse gas emissions by 2010*. ICF Washington D.C. 1990.

"End-use efficiency and NOx emissions in aviation". In S. Meyers, Ed. *Energy efficiency and structural change: Implications for the Greenhouse problem*. Lawrence Berkeley Laboratory, Berkeley CA 1988.

Estimates of future CO, N2O and NOx emissions from energy combustion, *Atmospheric Environment*, March 1987.

Tropospheric CH4/CO/NOx: The next 50 years. Co-author with Anne M. Thompson. UNEP/USEPA International Ozone Conference, 1986.

Eliminating CFCs from aerosol uses: the U.S. experience and its applicability to other nations. U.S. Environmental Protection Agency, Washington, February 1986.

The 1983 world oil surplus: some implications for OCS leasing. Prepared for the U.S. House Subcommittee on the Panama Canal/OCS Washington, April 1983.

The effect of OCS leasing schedules and procedures on fair market value. Paper presented to the Western Economic Association, Seattle July 1983.

Efficient strategies for preserving groundwater quality, with Rob Wolcott. U.S. Environmental Protection Agency, May 1982.

Exclusive territorial distributorships and consumer welfare: the case of beer. Food Marketing Institute, Washington D.C. 1982.

The Great Giveaway, with others, Sierra Club, October 1982.

The public benefits of the proposed Union Pacific, Missouri Pacific, Western Pacific Consolidation. Interstate Commerce Commission, August 1981

Regional economic impacts of OCS oil and gas development. with Susan Little and Rob Wolcott. Governor's Office of Planning and Research, California, November 1976.

MICHAEL KAVANAUGH

Federal Court Trial Testimony Since 1/91

NRDC v. Texaco - Wilmington - 2/91, 88-263-JRR
U.S. v. City of San Diego - San Diego - 2/91, 88-1101-B(IEG)
SCLDF v. City/County of Honolulu - Honolulu - 1/93, 90-00218-HMF
Friends of Earth v Laidlaw - Columbia SC - 11/93, DSC 3-92-1697-17
PIRG v. MEI - Newark - 1/94, DNJ 89-3193
Friends of Earth v Laidlaw - Columbia SC - 7/95, DSC 3-92-1697-17
Friends of Earth v. Gaston Recycling 7/95, DSC 3-92-2574-0
PIRG v. Hercules - Camden NJ - 2/97, DNJ 89-2291
U.S. v. Rapanos et al. - Detroit MI - 10/2000, 94-CV-70788DT

Deposition Testimony since 1/91

U.S. v. San Diego 1/91, 2/91, 88-1101-B(IEG)
SCLDF v. C&C Honolulu (Sand Island) 2/91, 90-00219 ACK
U.S. v. Louisiana Pacific & Simpson Paper 4/91, C-87-0567-MHP
PIRG v. Hercules 7/91, DNJ 89-2291
U.S. v. Corning 9/91, 3:CV-90-207

NRDC v. Total Petroleum 5/92
PIRG v. Witco Chem. 5/92, DNJ 89-3146
Hawaii's Thousand Friends v. C&C Honolulu (Honouliuli) 6/92, 90-00218-HMF
PIRG v. Circuit Foil 12/92, DNJ 89-5371

Arkansas Wildlife Fed. v. Hudson Food 5/93
U.S. v. Lawrence Cty. 5/93, C-1-91-302
PIRG v. Essex Cty. 6/93, DNJ 92-4465

TN. Enviro. Council v. Dana 4/94, 1-92-0074
Friends of the Earth v. Gaston Recycling 1/95, DSC 3-92-2574-0
Stevens v. McGinnis, Inc., et al. 2/95, C-1-93-442
Save Our Beaches v. C&C Honolulu (Kaneohe/Kailua) 3/95, 92-00263
DAE
City of Independence, Mo. v. Amoco 8/96
California Sportfishing Alliance v. El Dorado 8/96, CV-S-95-699
SF Baykeeper v. Dow Chemical Co., 9/98, C97-01988
American Canoe Association v. Green Valley-Greenwood PSD, City of St. Albans and Dunbar PSD, WVA. 10/98, 97-0949
Interfaith Community Organization v. Shinn et al, 2/00, 93-4774, 94-3434, 94-3793
U.S. v. Rapanos et al, 9/00, 94-CV-70788DT
American Littoral Society V. Rahway Valley Sewerage Authority 10/00, UNN-L-163-98